

Animal Physiology [334]

COURSE OUTLINE

(1) GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
ACADEMIC UNIT	DEPARTMENT OF ANIMAL SCIENCE		
LEVEL OF STUDIES	Undergraduate [Required]		
COURSE CODE	334	SEMESTER	4 th
COURSE TITLE	ANIMAL PHYSIOLOGY		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
Theory lectures		3	3
Laboratory		3	3
Total		6	6
COURSE TYPE	Scientific area		
PREREQUISITE COURSES:	Animal Anatomy-Histology, Introduction to Animal Biochemistry		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS:	Yes		
COURSE WEBSITE (URL):	https://oeclclass.aua.gr/eclass/courses/EZPY177/		
TEACHING STAFF:	Theory: Balaskas C., Arsenakis I., Sapanidou V. Laboratory practice: Arsenakis I., Sapanidou V., Kalogiannis D.		

(2) LEARNING OUTCOMES

Learning outcomes
The course Animal Physiology describes the physiological mechanisms involved in body function. The course modules aim to present the biological principles involved in animal body functions at molecular, cellular, tissue, organ and system level. It aims to present and describe the physiological mechanisms of function, control and interactions involved in homeostasis. Upon completion of the course the student should be able to: • Comprehend animal function. • Combine knowledge related to function derived from other courses, such as Physics, Biochemistry, Biology, Anatomy and Histology • Understand the complexity of body functions, the interactions between various systems and the control mechanisms involved in the preservation of homeostasis, animal health and production. • Identify and analyze physiology parameters and mechanisms. According to Bloom a student should be able to: 1. Describe animal physiology and recognize dysfunctions. [KNOWLEDGE] 2. Detect comparative functional implications for different animal species. [UNDERSTANDING] 3. Examine physiological mechanisms and attribute these to body systems and animal species. [APPLICATION] 4. Combine physiological parameters and literature and differentiate between organs and systems involved for each animal species. [ANALYSIS] 5. Describe and explain animal physiology. [SYNTHESIS] 6. Compare animal species function, evaluate, and comprehend their structural and functional differences. [EVALUATION]
General Competences
• Search, analysis and synthesis of data, using the required technologies • Autonomus work • Teamwork • Promotion of free, constructive and inductive thinking

(3) SYLLABUS

i. Cellular and molecular basis of physiology. Homeostatic mechanisms.
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- ii. Nervous system function. Sensory organs function.
- iii. Autonomic nervous system function. Neurotransmitters and receptors.
- iv. Endocrine system function. Hormone synthesis, secretion, and mechanisms of actions.
- v. Muscle function. Muscle energy sources.
- vi. Bone physiology. Osteogenesis and bone growth.
- vii. Blood and lymph circulatory system physiology.
- viii. Gastrointestinal system physiology: movement, secretion, digestion, and absorption. Neuro-hormonal regulation of gastrointestinal function. Functional differences between ruminants and monogastric species. Liver and pancreas functions.
- ix. Respiratory system physiology. Thermoregulation.
- x. Urinary system physiology. Acid-base balance.
- xi. Male and female genital systems physiology.
- xii. Skin and mammary gland physiology.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	In class, face to face.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	PowerPoint presentations, multimedia, and world wide web. Laboratory practice using physiology simulation software. Student learning support by e-class. Communication with students via e-mail.	
TEACHING METHODS	Activity	Semester workload
	Lectures	39
	Laboratory practice	36
	Literature search and analysis	25
	Individual study	50
	Course total (25 h of workload per ECTS)	150
STUDENT PERFORMANCE EVALUATION	Evaluation language: Greek Evaluation method: Written final examination. I. Theory (T): 60% of the final exam with short and extensive answers and multiple-choice questions. II. Laboratory (L): 40% of the final exam with short and extensive answer and multiple-choice questions. Final score: (T)+(L) = 60+40=100% of the total final score. Erasmus Programme: Evaluation language: English T he evaluation of Erasmus students relies on essays and an oral examination conducted face-to-face after the presentation of each essay.	

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Θεοδωρόπουλος Γ., Χαδιώ-Μάντζαρη Στ., Μπαλάσκας Χρ., Οικονομόπουλος Ι. Λειτουργική Ανατομική και Φυσιολογία των Ζώων. ISBN-13: 978-618-80647-8-2 Εκδόσεις Utopia. Αθήνα, 2014. Επιμέλεια- Μετάφραση του Functional Anatomy and Physiology of Domestic Animals, 4th edition, W.O. Reece, Wiley-Blackwell.
- Klein B.G. Cunningham's Textbook of Veterinary Physiology. 6th edition, Elsevier, 2019.
- Noakes D.E., Parkinson T.J., England G.C.W. Veterinary reproduction and obstetrics. 10th edition. Elsevier, 2019.
- Bowden S.J. Introduction to veterinary anatomy and physiology workbook. 2nd edition, Elsevier, 2009.

- Related academic journals:

Cell Nature Nature-Cell Biology Nature-Structural Biology Journal of Comparative Physiology Animal Physiology Journal of Endocrinology Animal Reproduction Science